IN THE SPECIFICATION

Please amend page 1 by inserting the following heading between the title of the invention and the first paragraph:

"FIELD OF THE INVENTION"

Please amend page 1 by inserting the following heading between the first and second paragraphs:

"BACKGROUND OF THE INVENTION"

Please amend page 2 by inserting the following heading on line 15:

"SUMMARY OF THE INVENTION"

Please amend page 7 by inserting the following heading on line 6:

"BRIEF DESCRIPTION OF THE DRAWINGS"

Please amend page 8 by inserting the following heading above line 1:

"DETAILED DESCRIPTION OF THE INVENTION"

Please amend page 16 by inserting the following language between the "CLAIMS" heading and claim 1:

"I/We claim:"

Please amend pages 2-5 by deleting the text beginning on page 2 line 27 and ending on page 5 line 3 as follows:

"~~As used herein, the term "fluorocompound" means any species comprising fluorine, and includes fluorocarbons, perfluorocompounds and hydrofluorocompounds, such as~~ ~~CF_4, C_2F_6, CHF_3, C_3F_8, and C_4F_8, that can be converted into CO_2 and HF, which can be taken into solution in a wet scrubber. Other examples are NF_3, which can be converted into N_2 and HF, and SF_6, which can be converted into SO_2 and HF.~~
~~By providing a method in which heated OH^- and/or H^+ ions are formed from a suitable source thereof, such as water or an alcohol, for subsequent reaction with a~~

~~PFC component in an effluent gas stream, it has been found that the energy required to cause the destruction of the PFC component of the gas stream can be reduced, and the efficiency of that destruction can be radically improved. For example, H^+ and OH^- ions formed from the dissociation of water are capable of reacting with a PFC contained in the gas stream within a reaction chamber at ambient temperature, and thus at a much lower temperature than would be required if the water had not been pre-ionised before being introduced into the waste stream.~~

~~By injecting the plasma stream into the chamber through an aperture, another advantage is provided by not bringing the equipment used to generate the plasma stream into contact with either the effluent gas stream or any by-products from the reaction of the PFC with the OH^- and/or H^+ ions. As a result, any one of a range of equipment may be used to generate the plasma stream. In the preferred embodiment, a plasma is generated to decompose a plasma source gas to produce the plasma stream. For example, the plasma may be generated using a D.C source or radiation at a frequency of around 580 kHz, 13.56 MHz, 27 MHz, 915 MHz or 2.45 GHz to generate a plasma stream from the plasma source gas. Alternatively, a glow discharge may be generated to decompose the source gas. As is well known, a glow discharge is a luminous, thermal plasma formed by applying to a gas a voltage that is greater than the breakdown voltage of that gas. The plasma stream may also be generated by a discharge other than a glow discharge, for example by a corona discharge or an arc discharge. Such a discharge may be generated using a plasma gun, in which an electric arc is created between a water-cooled nozzle (anode) and a centrally located cathode. A stream of source gas, for example, an inert, ionisable gas such as nitrogen or argon, passes through the electric arc and is dissociated thereby. The plasma stream issuing from the nozzle resembles an open oxy-acetylene flame.~~

~~The plasma stream thus provides a dual role of (a) generating adequate species in the form of H^+ and/or OH^- ions that would then react with the PFC component of the gas stream, and (b) imparting heat as the initiation energy that enables the reaction between the ions and the PFC.~~

~~Further advantages are that a relatively cheap and readily available fluid, such as water vapour or a fuel, for example hydrogen, hydrocarbon or an alcohol, can be used to generate H^+ and/or OH^- ions, and that the reaction can take place at any convenient pressure, for example, around or below atmospheric pressure. Examples of a suitable alcohol include methanol, ethanol, propanol, propan-2-ol and butanol. Other examples of a source of H^+ ions include hydrogen, a hydrocarbon, ammonia and a paraffin.~~

~~Various techniques may be used to form the ions using a plasma gun. In a first technique, a plasma stream is formed and, prior to the injection of the plasma stream into the chamber, water (as an example of a suitable source of these ions) is conveyed to the stream so that a flame containing these ions is injected into the chamber to abate the effluent gas stream within. The water may be conveyed to the plasma stream separately from the source gas, or within a fluid mixture comprising both water vapour and the source gas. In a second technique, both water and the effluent gas stream are separately conveyed into the chamber. The water is dissociated by the flame to form heated ions within the chamber, which ions subsequently react with the PFC component of the waste stream. In a third technique, the effluent gas stream is conveyed to the plasma stream prior to its injection into the reaction chamber, so that both the plasma stream and the gas stream, which may comprise the PFC and/or radicals generated from the PFC, are injected into the reaction chamber. Water may be conveyed to the plasma stream upstream from the aperture, that is, with one of the source gas or the effluent gas stream, or separately therefrom, or may be conveyed to the plasma stream downstream from the nozzle, for example, directly to the reaction chamber. In this case, the water may impinge upon the plasma stream to form heated ions within the chamber for reacting with the PFC and/or the PFC radicals, and/or may react directly with the PFC radicals within the chamber for abatement thereof.~~"

Please amend page 5 line 3 to read as follows:
"~~Thus, in~~In a second aspect, the present invention"

Please amend pages 5-6 by deleting the text beginning on page 5 line 10 and ending on page 6 line 9 as follows:

"~~In the preferred embodiment, a single plasma gun is used to inject the plasma stream into the reaction chamber. However, a plurality of such guns may be provided to inject a plurality of plasma streams into the same chamber, each for abating a common or respective gas stream. Alternatively, a plurality of gas streams may be conveyed to a single chamber, into which a single plasma stream is injected. This can increase further the efficiency of the treatment of the waste stream. These guns may be connected to a common power source or to respective sources.~~

~~Depending on whether the chamber is connected to the inlet or the outlet of a pump for pumping the gas stream from, for example, a process tool, and the flow rate of the gas stream, the chamber may be at any pressure in the range from 10^{-3} mbar to 2000 mbar.~~

~~Depending on the nature of the reaction occurring within the chamber, the abatement of the fluorocompound within the gas stream may be promoted by heating the chamber, for example, to a temperature in the range from ambient to 1500°C. For example, the chamber may be heated to a temperature in the range from 400°C to 1500°C, more preferably in the range from 500°C to 1000°C.~~

~~The ion source may be injected into the chamber over a catalyst, for example, one of tungsten, silicon and iron.~~

~~The gas stream is preferably subsequently conveyed to a wet scrubber or a reactive solid media downstream from the chamber to remove one or more by-products from the reaction from the gas stream. The scrubber may be coupled close to the reaction chamber, or may be more remote from the reaction chamber.~~

~~As previously mentioned, the PFC may comprise a perfluorinated, or a hydrofluorocarbon, compound, for example, one of CF_4, C_2F_6, CHF_3, C_3F_8, C_4F_8, NF_3 and SF_6.~~"

Please amend page 8 by inserting the following text at the end of line 13 as follows:

"... and helium. As used herein, the term "fluorocompound" means any species comprising fluorine, and includes fluorocarbons, perfluorocompounds and hydrofluorocompounds, such as CF_4, C_2F_6, CHF_3, C_3F_8, and C_4F_8, that can be converted into CO_2 and HF, which can be taken into solution in a wet scrubber. Other examples are NF_3, which can be converted into N_2 and HF, and SF_6, which can be converted into SO_2 and HF."

Please amend page 9 line 3 to read as follows:

"illustrated in Figure 1, the abatement device 16 may be located between the"

Please amend page 9 by inserting the following text as a new paragraph on line 9 as follows:

"In the preferred embodiment, a plasma is generated to decompose a plasma source gas to produce the plasma stream. For example, the plasma may be generated using a D.C source or radiation at a frequency of around 580 kHz, 13.56 MHz, 27 MHz, 915 MHz or 2.45 GHz to generate a plasma stream from the plasma source gas. Alternatively, a glow discharge may be generated to decompose the source gas. As is well known, a glow discharge is a luminous, thermal plasma formed by applying to a gas a voltage that is greater than the breakdown voltage of that gas. The plasma stream may also be generated by a discharge other than a glow discharge, for example by a corona discharge or an arc discharge. Such a discharge may be generated using a plasma gun, in which an electric arc is created between a water-cooled nozzle (anode) and a centrally located cathode. A stream of source gas, for example, an inert, ionisable gas such as nitrogen or argon, passes through the electric arc and is dissociated thereby. The plasma stream issuing from the nozzle resembles an open oxy-acetylene flame."

Please amend page 9 line 17 by inserting the following text as follows:

"36. By providing a method in which heated OH^- and/or H^+ ions are formed from a suitable source thereof, such as water or an alcohol, for subsequent reaction with a PFC component in an effluent gas stream, it has been found that the energy required

to cause the destruction of the PFC component of the gas stream can be reduced, and the efficiency of that destruction can be radically improved. For example, H^+ and OH^- ions formed from the dissociation of water are capable of reacting with a PFC contained in the gas stream within a reaction chamber at ambient temperature, and thus at a much lower temperature than would be required if the water had not been pre-ionised before being introduced into the waste stream. Further advantages are that a relatively cheap and readily available fluid, such as water vapour or a fuel, for example hydrogen, hydrocarbon or an alcohol, can be used to generate H^+ and/or OH^- ions, and that the reaction can take place at any convenient pressure, for example, around or below atmospheric pressure. Examples of a suitable alcohol include methanol, ethanol, propanol, propan-2-ol and butanol. Other examples of a source of H^+ ions include hydrogen, a hydrocarbon, ammonia and a paraffin.

Various techniques may be used to form the ions using a plasma gun. In a first technique, a plasma stream is formed and, prior to the injection of the plasma stream into the chamber, water (as an example of a suitable source of these ions) is conveyed to the stream so that a flame containing these ions is injected into the chamber to abate the effluent gas stream within. The water may be conveyed to the plasma stream separately from the source gas, or within a fluid mixture comprising both water vapour and the source gas. In a second technique, both water and the effluent gas stream are separately conveyed into the chamber. The water is dissociated by the flame to form heated ions within the chamber, which ions subsequently react with the PFC component of the waste stream. In a third technique, the effluent gas stream is conveyed to the plasma stream prior to its injection into the reaction chamber, so that both the plasma stream and the gas stream, which may comprise the PFC and/or radicals generated from the PFC, are injected into the reaction chamber. Water may be conveyed to the plasma stream upstream from the aperture, that is, with one of the source gas or the effluent gas stream, or separately therefrom, or may be conveyed to the plasma stream downstream from the nozzle, for example, directly to the reaction chamber. In this case, the water may impinge upon the plasma stream to form heated ions within the chamber for reacting with the PFC and/or the PFC radicals, and/or may react directly with the PFC radicals within the chamber for abatement thereof."

Please amend page 9 by inserting the following text on line 28 as follows: "the plasma torch 42. By injecting the plasma stream into the chamber through an aperture, another advantage is provided by not bringing the equipment used to generate the plasma stream into contact with either the effluent gas stream or any by-products from the reaction of the PFC with the OH^- and/or H^+ ions. As a result, any one of a range of equipment may be used to generate the plasma stream. As shown in Figure 4..."

Please amend page 11 by inserting the following text on line 5 as follows: "chamber 40. The plasma stream thus provides a dual role of (a) generating adequate species in the form of H^+ and/or OH^- ions that would then react with the PFC component of the gas stream, and (b) imparting heat as the initiation energy that enables the reaction between the ions and the PFC."

Please amend page 14 by inserting between the first and second complete paragraphs the following paragraphs:
"In the preferred embodiment, a single plasma gun is used to inject the plasma stream into the reaction chamber. However, a plurality of such guns may be provided to inject a plurality of plasma streams into the same chamber, each for abating a common or respective gas stream. Alternatively, a plurality of gas streams may be conveyed to a single chamber, into which a single plasma stream is injected. This can increase further the efficiency of the treatment of the waste stream. These guns may be connected to a common power source or to respective sources.

Depending on whether the chamber is connected to the inlet or the outlet of a pump for pumping the gas stream from, for example, a process tool, and the flow rate of the gas stream, the chamber may be at any pressure in the range from 10^{-3} mbar to 2000 mbar.

Depending on the nature of the reaction occurring within the chamber, the abatement of the fluorocompound within the gas stream may be promoted by heating the chamber, for example, to a temperature in the range from ambient to

1500°C. For example, the chamber may be heated to a temperature in the range from 400°C to 1500°C, more preferably in the range from 500°C to 1000°C.

The ion source may be injected into the chamber over a catalyst, for example, one of tungsten, silicon and iron.

The gas stream is preferably subsequently conveyed to a wet scrubber or a reactive solid media downstream from the chamber to remove one or more by-products from the reaction from the gas stream. The scrubber may be coupled close to the reaction chamber, or may be more remote from the reaction chamber.

As previously mentioned, the PFC may comprise a perfluorinated, or a hydrofluorocarbon, compound, for example, one of CF_4, C_2F_6, CHF_3, C_3F_8, C_4F_8, NF_3 and SF_6."

Please amend page 15 by inserting beginning line 19 the following text:
"While the foregoing description and drawings represent the preferred embodiments of the present invention, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the true spirit and scope of the present invention."